

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 09/993,680
ATTORNEY DOCKET NO. Q67255

REMARKS

Applicants thank the Examiner for acknowledging Applicants' claim to foreign priority, and for indicating that the certified copy of the priority document, French Patent Application No. 0015887 dated December 7, 2000, has been made of record in the file.

Applicants thank the Examiner for initialing the references listed on the PTO-1449 form submitted with the Information Disclosure Statement filed on November 27, 2001, thereby confirming that the listed references have been considered.

Claims 1-6 have been examined on their merits.

Applicants herein amend claims 1 and 6 to recite a multiplexed signal consisting of m interleaved bands of wavelengths, wherein each interleaved band consists of p wavelengths, and the numbers m and p are mutually prime. Support for the amendments to claims 1 and 6 can be found, for example, on page 8, lines 7-12 of the instant specification. Entry and consideration of the claim amendments is respectfully requested.

Claims 1-6 are all the claims presently pending in the application.

1. The Examiner objects to claims 1 and 6 as containing informalities. Specifically, the Examiner objects to the phrase "a multiplex" as being vague and not of standard usage in the art. Applicants thank the Examiner for the helpful suggestion, and herein amend claims 1 and 6 to recite a "multiplexed signal." Applicants believe that the Examiner's objection has been overcome, and respectfully request withdrawal of same.

2. Claims 1 and 6 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Pan *et al.* (U.S. Patent No. 5,748,350). Applicants traverse the rejection of claims 1 and 6 at least for the reasons set forth below.

To support a conclusion that a claimed invention lacks novelty under 35 U.S.C. § 102, a single source must teach all of the elements of a claim. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379 (Fed. Cir. 1986). A claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). A single source must disclose all of the claimed elements arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Rejections under 35 U.S.C. § 102 are proper only when the claimed subject matter is identically disclosed or described in the prior art. Thus, the cited reference must clearly and unequivocally disclose every element and limitation of the claimed invention.

With respect to claim 1, Pan *et al.* do not teach or suggest an optical demultiplexing system for demultiplexing a multiplexed signal consisting of m interleaved bands of wavelengths, wherein each interleaved band consists of p wavelengths, and the numbers m and p are mutually prime. The Examiner argues that the teaching of the mutually prime numbers m and p is allegedly inherent in the disclosure of Pan *et al.* The fact that a certain element **might** be present in the prior art is **not** sufficient to establish the inherency of that element. *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 581-82 (CCPA 1981). “To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.

Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999); MPEP§ 2112. “In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original); MPEP§ 2112. The Examiner has not provided a basis in fact that the allegedly inherent characteristic *necessarily* flows from the teachings of Pan *et al.* The total number of wavelengths demultiplexed by Pan *et al.* is based on the formula $p = 4n$, where p is the total number of wavelengths and n represents the number of ports on a n -port optical circulator. *See* col. 9, lines 1-10 of Pan *et al.* In Applicants’ disclosure, Applicants’ point out that, if the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band are not mutually prime, then the demultiplexing is not possible. *See* page 8, lines 7-12 of the Applicants’ disclosure. There is no such disclosure in Pan *et al.*, and the Examiner has not alleged that a person of ordinary skill in the art would recognize from the Pan *et al.*’s disclosure that the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band must be mutually prime. Critically, in Pan *et al.*, it is entirely possible that the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band could be equal to each other. In Pan *et al.*’s disclosure with respect to n -port optical circulator (143) and the bandpass wavelength division units (145n) in Figure 8A, there is certainly no disclosure with respect to the

number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band being mutually prime.

Based on the foregoing reasons, Applicants believe that Pan *et al.* fail to disclose all of the claimed elements as arranged in claim 1. Therefore, under *Hybritech* and *Richardson*, Pan *et al.* clearly cannot anticipate the present invention as recited in independent claim 1. Thus, Applicants believe that claim 1 is in condition for allowance. Applicants respectfully request that the Examiner withdraw the § 102(b) rejection of claim 1.

With respect to claim 6, Pan *et al.* do not teach or suggest an optical multiplexing system for creating a multiplexed signal consisting of m interleaved bands of wavelengths, wherein each interleaved band consists of p wavelengths, and the numbers m and p are mutually prime. Here, the Examiner argues that the teaching of the mutually prime numbers m and p is allegedly inherent in the disclosure of Pan *et al.* Similar to the above discussion with respect to claim 1, Pan *et al.* lack any disclosure with respect to the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band being mutually prime. The Examiner has not met the requirements for relying on inherency to reject claim 6 for the same reasons as discussed above with respect to claim 1. Based on the foregoing reasons, Applicants believe that Pan *et al.* fail to disclose all of the claimed elements as arranged in claim 6. Therefore, under *Hybritech* and *Richardson*, Pan *et al.* clearly cannot anticipate the present invention as recited in independent claim 6. Thus, Applicants believe that claim 6 is in condition for allowance. Applicants respectfully request that the Examiner withdraw the § 102(b) rejection of claim 6.

2. Claims 1-6 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Miyachi *et al.* (EP 1043859). Applicants traverse the rejection of claims 1-6 at least for the reasons set forth below.

With respect to claim 1, Miyachi *et al.* do not teach or suggest an optical demultiplexing system for demultiplexing a multiplexed signal consisting of m interleaved bands of wavelengths, wherein each interleaved band consists of p wavelengths, and the numbers m and p are mutually prime. The Examiner argues that the teaching of the mutually prime numbers m and p is allegedly inherent in the disclosure of Miyachi *et al.* In the same manner as discussed above with respect to Pan *et al.*, the Examiner has not provided a basis in fact that the allegedly inherent characteristic necessarily flows from the teachings of Miyachi *et al.* The total number of wavelengths demultiplexed by Pan *et al.* is based on the formula $KM = N$, where N is the total number of wavelengths, M is the number of wavelength groups and K is the number of channels in a wavelength group. See paragraph [0096] of Miyachi *et al.* In Applicants' disclosure, Applicants' point out that, if the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band are not mutually prime, then the demultiplexing is not possible. See page 8, lines 7-12 of the Applicants' disclosure. There is no such disclosure in Miyachi *et al.*, and the Examiner has not alleged that a person of ordinary skill in the art would recognize from the Miyachi *et al.*'s disclosure that the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band must be mutually prime. Furthermore, in Miyachi *et al.*, it is entirely possible that the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band are equal to each other ("FIG. 14 shows an example in which

M=4 and K=4.” See paragraph [0097] of Miyachi *et al.*)¹ In Miyachi *et al.*’s disclosure with respect to the first and second optical demultiplexers (113, 114) in Figure 13, there is certainly no disclosure with respect to the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band being mutually prime.

Based on the foregoing reasons, Applicants believe that Miyachi *et al.* fail to disclose all of the claimed elements as arranged in claim 1. Therefore, under *Hybritech* and *Richardson*, Miyachi *et al.* clearly cannot anticipate the present invention as recited in independent claim 1. Thus, Applicants believe that claim 1 is in condition for allowance, and further believe that claims 2-5 are allowable as well, at least by virtue of their dependency from claim 1. Applicants respectfully request that the Examiner withdraw the § 102(e) rejection of claims 1-5.

With respect to claim 6, Miyachi *et al.* do not teach or suggest an optical multiplexing system for creating a multiplexed signal consisting of m interleaved bands of wavelengths, wherein each interleaved band consists of p wavelengths, and the numbers m and p are mutually prime. again, the Examiner argues that the teaching of the mutually prime numbers m and p is allegedly inherent in the disclosure of Miyachi *et al.* Similar to the above discussion with respect to claim 1, Miyachi *et al.* lack any disclosure with respect to the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band being mutually prime. The Examiner has not met the requirements for relying on inherency to reject claim 6 for the same reasons as discussed above with respect to claim 1. Based on the foregoing reasons, Applicants believe that Miyachi *et al.* fail

¹ Contrary to the Examiner’s assertion that M and K would inherently differ, Miyachi *et al.* explicitly state that M and K are equal to each other.

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to disclose all of the claimed elements as arranged in claim 6. Therefore, under *Hybritech* and *Richardson, Miyachi et al.* clearly cannot anticipate the present invention as recited in independent claim 6. Thus, Applicants believe that claim 6 is in condition for allowance. Applicants respectfully request that the Examiner withdraw the § 102(e) rejection of claim 6.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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